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SIRIO RAY 1200 / 1800

- ***Code 02B014 - Sirio RAY 1200***
- ***Code 02B015 - Sirio RAY 1800***

- ***OPERATING INSTRUCTIONS***

Graphic & pagination PC CAD & VIDEO

INTRODUCTION

Thank you for using the **Sirio RAY 1200/1800** !

The **Sirio RAY 1200/1800** projects, thanks to an extremely efficient optic system (international patent n. WO99/40361), a powerful light beam which can create numberless color shades. Its performances, in terms of luminousity and lighted surfaces, can reach incredible levels.

The **Sirio RAY 1200/1800** comes in two versions:

- Cod. 02B014 **Sirio RAY 1200/1800** for MSD 1200W discharge lamp
- Cod. 02B015 **Sirio RAY 1200/1800** for MSR 1800W discharge lamp

The **Sirio RAY 1200/1800** can work in automatic mode or in synchro mode, otherwise may be controlled by 8 bit DMX controllers. The input protocol is the DMX 512. To drive the **Sirio RAY 1200/1800** we suggest to use our controller MasterShow 512.

To make the most of its possibilites and for a correct functioning of this unit in the years to come, we suggest you to read carefully this manual before connecting or putting the spot into use. By doing so you will gain experience with its commands and connections and you will be easily able to use it.

ATTENTION: carefully read the directions of this manual. Exclusively follow the safety rules in force and do not carry out assembly and/or maintenance operations without taking all precautions as indicated in the different sections or without the necessary specialization.

This manual must always accompany the equipment, therefore it must be available and readable at any moment if necessary. Also in case of sale, rent, change of place and/or ownership, these documents shall be enclosed with the relative equipment.

ADVICES FOR A CORRECT INSTALLATION

This equipment is destined to an exclusively Professional use.

READ ALL CAUTIONS AND WARNINGS PRIOR TO OPERATE THIS EQUIPMENT.Instruction to prevent injury or damage due to electric shock, fire, mechanical hazards and UV radiation hazards.

• PROTECTION AGAINTS FIRE

1) This equipment is designed for use with the following lamps only: MSD 1200W MSR 1800W.
   DO NOT USE ANY OTHER TYPE LAMP!
2) Maintain minimum distance of 0.5 meter from walls or any other type flammable surfaces.
3) Maintain minimum distance to lighted objects of 5.0 meter.
4) Replace fuses only with the specified type and rating.
5) Do not install the spot close to heat sources. Do not lay the connection cable on the spot when it is warm.

• PROTECTION AGAINST ELECTRIC SHOCK

1) This equipment must be earthed.
2) Class I equipment. The power supply cord includes a protective earthing conductor as part of the cord.
3) For connection to the supply mains proceed as pict.1 page 3. The equipment must be connected to branch circuit having a circuit- breacker In=16A Id=0.03A (230VAC)
4) Disconnect power before lamp's replacement or servicing (service personnel).

• PROTECTION AGAINST MECHANICAL HAZARDS

1) Use secondary safety chain when fixing this equipment.
2) Hot lamp explosion hazard. Do not open the equipment for 300 seconds after switching off.
3) Equipment surface may reach temperature up to 100°C. Allow about five minutes before handling.
4) Replace the lamp if it is damaged or thermally deformed.

• PROTECTION AGAINST UV RADIATION HAZARDS

1) Do not start on this equipment without lamp enclosure or if the protection screens, or ultraviolets screens are damaged.
2) The protection screens, the lenses, or the ultraviolet filters must be replaced if they are visibly damaged and their effectiveness has been reduced, for example, by cracks or deep scratches.
3) Do not look directly at the lamp while lamp is on.

Declaration of CE conformity

COEF srl. Via Albinatico, 80-82 / 51019 Ponte Buggianese (Pistoia) ITALY
Declare that the product **SIRIO RAY 1200/1800** is in conformity with 89/336 EEC-EMC directive and with the actual required safety standars in accordance with LVD 73/23 EEC

Ponte Buggianese, December - 2002

DANGER SIGNAL: Generic dager signal and electric shock danger signal.

GENERAL WARRANTY CONDITIONS

- *The guarantee is valid for a period of 12 months from the date of purchase of the equipment.*
- *The guarantee is not valid in case a wrong voltage or frequency is selected.*
- *The parts which are proved to have manufacturing defects are also covered by the guarantee.*
- *The external parts of the equipment, its removable elements and lamps are excluded from the guarantee; for these parts we recommend to follow the directions supplied by their manufacturers.*
- *The guarantee is not valid in case of tampering or repairs carried out by non-authorized personnel.*
- *The replacement of the equipment during the validity of the guarantee is not provided for.*
- *The transport freights from and to the manufacturer for repairs under guarantee are at Customer's charge.*
- *When applying for the repair, always mention the serial number and the model of the equipment.*

PACKING CONTENTS

Carefully check the contents of the packaging and the completeness of the components. If any of the parts listed hereunder is missing, please contact your Dealer immediately:

- **Sirio RAY** *complet unit.*
- *This user manual.*
- *Frosted glass*
- *1 connector POWER.*

PROTECT NATURE.
DO NOT DISPOSE OF THE PACKAGING IN THE ENVIRONMENT.
CAREFULLY KEEP THE BOX AND THE COMPONENTS OF THE PACKAGING FOR ANY DISPLACEMENT OR RE-SHIPMENT OF THE EQUIPMENT.

Do not leave the packaging elements (polystyrene, nylon, metal parts, etc.) unattended.

TECHNICAL NOTES

Sirio RAY discharge lamp 1200W

•**LAMP:** discharge lamp MSD 1200W, Burning position: Universal, Colour temperature: 6000K, Lamp life (hours): 2000

•**COLORS**: CYM color mixing continuously variable (256 steps)

•**DIMMER:** 0-100% continuously variable (256 steps)

•**BEAM ANGLE:** Continuously variable (256 steps), Spot: 8° - 11° •Flood: 15° - 20°

•**POWER INPUT:** Rated voltage: 230Vac 50Hz; 230Vac 60Hz, On request: 208Vac 60Hz; 200Vac 50Hz
Rated power: 1600 VA, Rated current: 7A (230Vac)

Sirio RAY discharge lamp 1800W

•**LAMP:** discharge lamp MSR 1800W , Burning position: Universal, Colour temperature: 6000K, Lamp life (hours): 750

•**COLORS:** CYM color mixing continuously variable (256 steps)

•**DIMMER:** 0-100% continuously variable (256 steps)

•**BEAM ANGLE:** Continuously variable (256 steps), Spot: 5° - 8° •Flood: 11° - 14°

•**POWER INPUT:** Rated voltage: 230Vac 50Hz; 230Vac 60Hz, On request: 208Vac 60Hz; 200Vac 50Hz
Rated power: 2200 VA, Rated current: 10A (230Vac)

CIRCUIT - BREAKER		
MAINS VOLTAGE	In	Id
230V	32A	0.03A

Sirio RAY 1200 art. 02B014
Keep at least a distance of 0.5mt between the apparatus and infiammable surface nearby
Disconnect the unit from power before servicing
230 Vac ; 10A - 50 Hz
SN
QC
Lincesed by Studio Due

Sirio RAY1800 art. 02B015
Keep at least a distance of 0.5mt between the apparatus and infiammable surface nearby
Disconnect the unit from power before servicing
230 Vac ; 10A - 50 Hz
SN
QC
Lincesed by Studio Due

CONDUCTOR SIZES (length < 20mt.)	
MAINS VOLTAGE	CROSS SELECTIONAL AREAS
230V	3 x 1.5 mm ² (minimum)

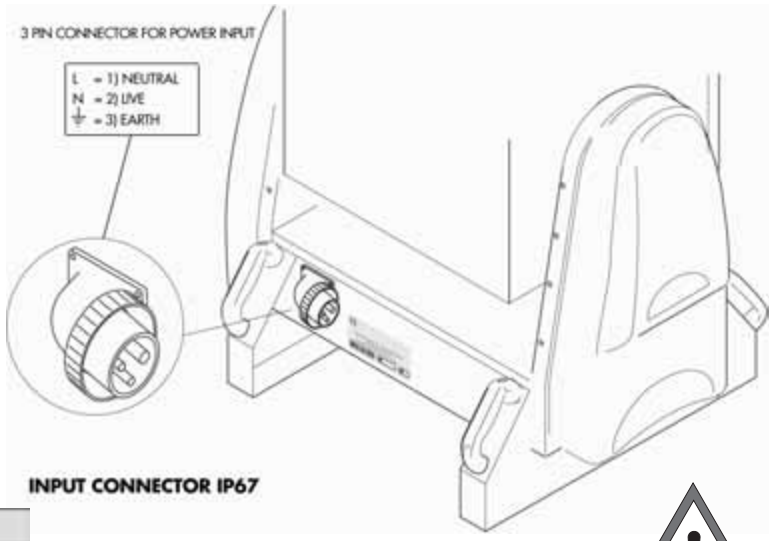
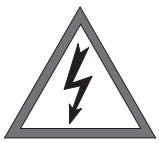


fig.1



BEFORE USING

WARNING: The equipment must be earthed.
IP 54 grade: the equipment must be installed on the horizontal plane.

Read all cautions and warnings to page 1 prior to install this equipment. Particularly, read the follow:
1) Disconnect power before lamp's replacement or servicing (service personnel)
2) Do not open the lamp cover for 300 seconds after switching off
3) Wear gloves and goggles to re-lamping or to work inside the unit (service personnel)

Before connecting the equipment to the power system: make sure that the mains voltage and frequency correspond to rated values.
- The **Sirio RAY 1200/1800** can be equipped for a mains voltage 230VAC, 50 or 60Hz
  on request: 208Vac, 60Hz; 200Vac, 50Hz

For a power supply of 100V-120V it is necessary to use one auto transformer with the following features:
- Output voltage 230V
- Output current 15A

The power supply cords construction is shown in pict.1. For connection to the mains supply proceed as pict.1.

The equipment must be connected to branch circuit having a circuit-breacker In=16A • Id=0.03A (230VAC)
a) Do not install the spot close to the heat sources. Observe minimum distance between the spots of 1.5 meters. Do not lay the connection cable on the spot when it is warm.
b) This unit must be positioned as to allow its ventilation. Be careful not to acclude the in-out ventilating grilles.
c) The unit must be positioned at least 50cm. from walls or other flammable surfaces.
d) Observe minimum distance to lighted objects of 5 meters.

External surface temperature Ta 35°C:
- After 5 minutes work; Tc=75°C.
- Once the thermic balance has been obtained; Tc=100°C.

4) The protection screens, the lenses, or the ultraviolet filters must be replaced if they are visibly damaged and their effectiveness has been reduced, for example, by cracks or deep scratches.
5) The lamp must be replaced if it has been damaged or thermally deformed.
6) Clean regularly the in-out ventilating grilles.
7) Do not handle the spot by taking it by the head, but always by using the special handles.

INSTALLATION OF THE DISCHARGE LAMP MSD 1200W, MSR 1800W

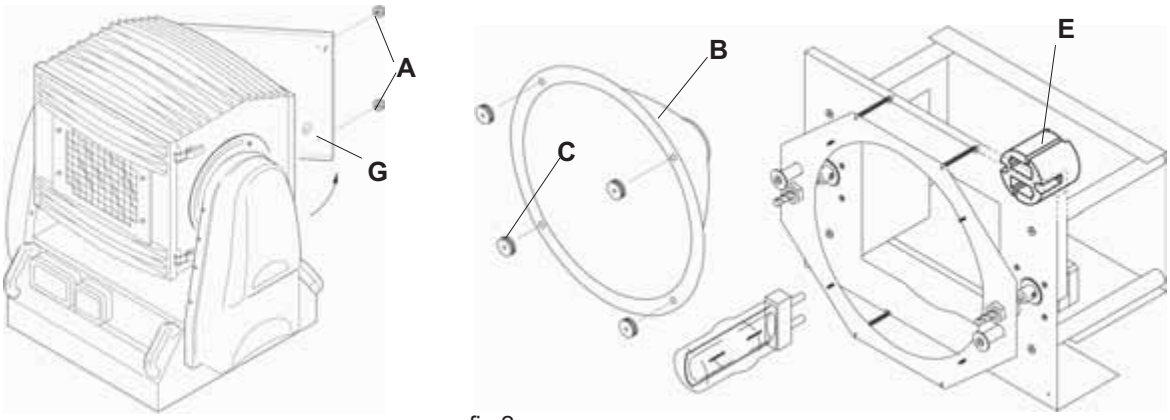


fig.2

In case of replacement of the lamp or maintenance, do not open the fixture unless 5 minutes have passed from the switching off.
This operation has to be done when the apparatus is disconnected from the mains supply.

1) Disconnect power before lamp' s replacement. Wear gloves and goggles.
2) Remove completely the pommels (A) on the base of the head
3) Open the base of the lamp room (G)
4) Unscrew the four pawls (C) and remove the parabole
5) Insert the lamp into the lampholder (E)
Do not touch the quarz bulb with fingers. If this happenes, clean the bulb before use with dry cloth and alcohol.
6) Insert the parabole (B)
7) Screw the four pawls to fix it (C)
8) Close the rear panel and install again the two pommels (A) and hold them tightly.

IP RATE - INSTALLATION OF THE DUST PROOF FILTERS

The declared IP rate of the **Sirio RAY 1200/1800** comes supported at these conditions:
- the installation of the fixture on a wide and stable surface
- the air cooling input and output are located on the base of the side-shell,

The **Sirio RAY 1200/1800** has a IP rate 44 without filters installed and an IP RATE 54 with filters installed.
You must use the filters in critical working conditions and, normally, when the fixture works outdoor.
You must remove the filters when the ambient temperature is over 35°C.
You must regularly clean the filters to allow the correct cooling of the fixture.

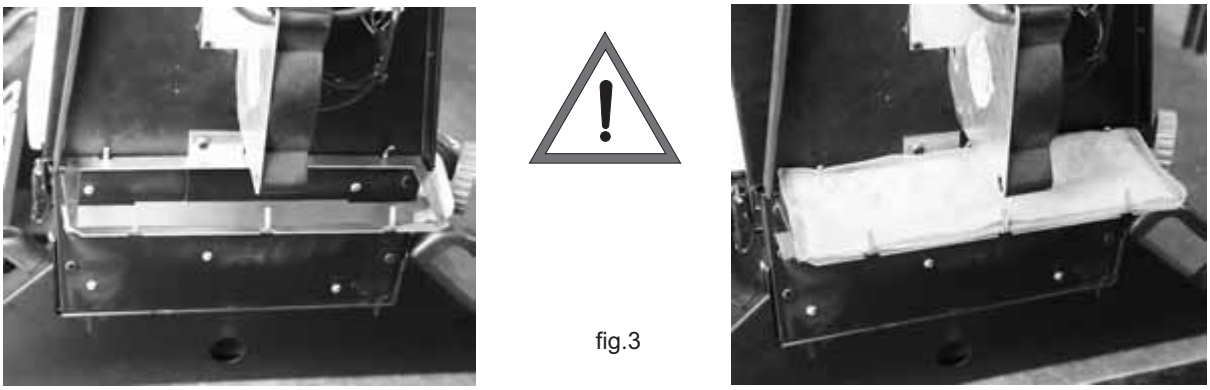


fig.3

You must operate with power supply disconnected from the fixture.

You must remove the two side protective shells. The two filters must be assembled on the bulkheads at the bottom of the side brackets.Pay attention to the installation: dust proof filters must stick correctly to prevent the entrance of the dust. You must control that the two filters completely cover the overall of the air entrance.

CONTROL PANEL

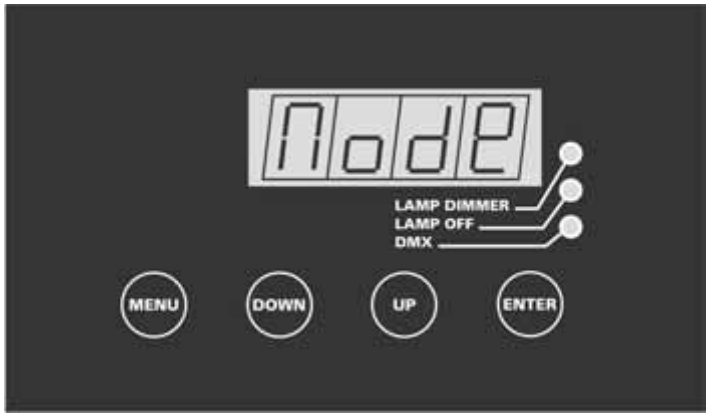


fig.4

On the control panel of the **Sirio RAY 1200/1800** (pict.4) you can find, besides the display, the leds and the buttons to use to set the spot.

LED

- **"DMX" led** flashing: DMX input present
  off: no DMX input

- **"LAMP" led** flashing: the lamp switching off is remotely controlled
  off: lamp switched on

- **"DIMMER" led** flashing: the lamp is 33% dimmered
  off: lamp switched on

BUTTONS

Four buttons are used to programme the spot:

- **MENU** to select the programming options
- **DOWN** to go backward in the selected options
- **UP** to go forward in the selected options
- **ENTER** to confirm the selected options

DISPLAY

Shows the various menus and the selected options.

SUMMARY OF THE PROGRAMMING FUNCTIONS OF THE Sirio RAY 1200/1800

About twenty seconds after the switching on, the number of the software version will be shown on the display in "X_00" format. Afterwards the first of the nine available menus will appear:

Addr	to assign the DMX-512 address
Mode	DMX512 mode, master with pre-set selection, slave
LHrS	lamp working hours
FHrS	fixture total working hours
nChn	channels number
FOCU	parabole position
teSt	auto-test
FLIP	display inversion
rSEt	reset of the spot

To select any of the given options, press the MENU button up to when the required one is shown.

Addr (Address)
To visualise the DMX address press ENTER.
To modify the address press Down and Up buttons and, once the required address has been selected, press and keep ENTER pressed up to when the display stops flashing (it flashes to indicate that the selected option is different from the pre-set one). To go back to the options without making any change, press the MENU button.

Mode (Mode)
To visualise this mode press ENTER.
Use Down and Up buttons to change the mode and, once the required one has been selected, press and keep ENTER pressed up to when the display stops flashing (it flashes to indicate that the selected option is different from the pre-set one). The available options are: no (normal) for the functioning in DMX reception; Pr01…Pr27 (pre-set 01…27) for the master functioning with the respective game, SL (slave) for the functioning as slave. To go back to the options without any change, press the MENU button.

LHrS (Lamp Hours)
To visualise the number of working hours of lamp press ENTER.
The maximum countable number of hours is 3000. Exceeding this number, the display will show gr3t (greater than 3 thousands). To reset the counter press simultaneously buttons Down and UP: the display will show CLLH (clear lamp hours). To go back to the options without making any change, press the MENU button.

FHrS (Fixture hours)
To visualise the number of working hours of fixture press ENTER. The maximum countable number of hours is 3000. Exceeding this number, the display will show gr3t (greater than 3 thousands). To reset the counter press simultaneously buttons Down and UP. A control of the memory will be run and all the default settings will be stored: the display will then show Init. If the memory is damaged, the display will show the message FAIL. To go back to the options without making any change, press the MENU button.

FOCU (Focus control)

To visualise the focus position press ENTER.

Use Down and Up buttons to change the channel and, once the required one has been selected, press and keep ENTER pressed up to when the display stops flashing (it flashes to indicate that the selected option is different from the pre-set one). It is possible to set 0 to 255 step). To go back to the options without making any change, press the MENU button.

nChn (Number of Channel)

To visualise the number of channel press ENTER.

Use Down and Up buttons to change the channel and, once the required one has been selected, press and keep ENTER pressed up to when the display stops flashing (it flashes to indicate that the selected option is different from the pre-set one). It is possible to set 6 channels or 7 channels (remote reset and remote lamp switch off). To go back to the options without making any change, press the MENU button.

teSt (Autotest)

To insert the auto-test press ENTER and keep it pressed up to when the display shows the flashing message t-on (test on). To take off the auto-test press the MENU button. To go back to the options without making any change, press the MENU button.

FLIP (Display overturning)

The display visualisation can be standard or overturned: by pressing the ENTER button the two modes will be alternatively visible. The selected one will be immediately stored in the spot setting.

To go back to the options without making any change, press the MENU button.

rSEt (Reset)

To run the complete reset press ENTER and keep it pressed up to when the display shows the flashing message r-on (reset on). Once the reset procedure has been completed the spot will go back to the normal setting. To go back to the options without making any change, press the MENU button.

DRIVING THE SIRIO RAY WITH A DMX REMOTE CONTROLLER

- Select the requested DMX starting address by operating on the Addr option
- Select the requested number of channel with NChn option
- Connect the DMX signal between the fixture and the controller
- Check that the DMX led is flasing. (DMX signal present)
- If there is no signal, you must manually reset by operating on the RESET option%

6/7 CHANNELS MODE SELECTION

Press the **MENU** button on the control panel up to when the option **nChn** is shown on the display, select it by pressing **ENTER** and the set indication will appear (6 or 7 channels). If you want to activate channel 7 you must set 6 channels on the display. Pass through the numbers by pressing the buttons **UP** and **DOWN**: once you have set the required number, store it by pressing the **ENTER** button and keep it pressed up to when the display stops flashing (the flashing shows that the selected option is different from the one previously stored). To exit from the selected option without making any change press the **MENU** button.

Here below is shown the complete list of the functions of the **Sirio RAY 1200/1800**.

The complete list of the DMX values can be found in appendix “A”

7 CHANNELS

CH 1= Speed
CH 2= Cyan
CH 3= Yellow
CH 4= Magenta
CH 5= Dimmer
CH 6= Beam angle
CH 7= Reset/Lamp Off

6 CHANNELS

CH 1= Speed
CH 2= Cyan
CH 3= Yellow
CH 4= Magenta
CH 5= Dimmer
CH 6= Beam angle

CONNECTION THE DATA LINK (DMX 512)

The connection of the DMX signal to the **Sirio RAY 1200/1800** must be made by using the signal input XLR 5 pin connectors which are located on the control panel of the fixture. (pict.5)

The pin nomenclature of the connectors for the connection to the DMX signal is listed in the table. (pict.5a)

In order to avoid any problem in the signal transmission, it is warmly suggested to use a cable for high speed data transmission (sect. 2x0.25 + gnd).

If the lines have a total length over 150-200 mts it is suggested to use a signal amplifier.

The usage of a normal microphonic or audio cable is suggested only for lines max 100 mts long.

To ensure the IP54 rate you must connect the DMX cable inside the base. Use the given cables fixing (pict. 5b) and connect by following the cables numbering (pict. 5c).

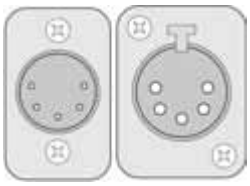
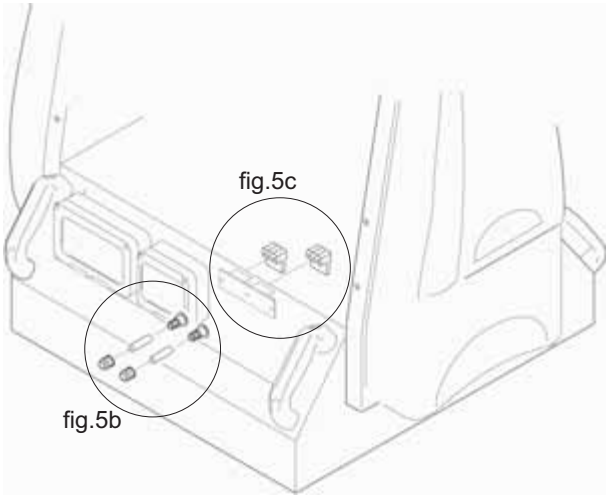


fig.5

fig.5a

PIN	WIRE	SIGNAL
1	SHIELD	GROUND/RETURN/0V
2	INNER CONDUCTOR	DATA COMPLEMENT (-, INVERTED)
3	INNER CONDUCTOR	DATA TRUE (+, NON INVERTED)



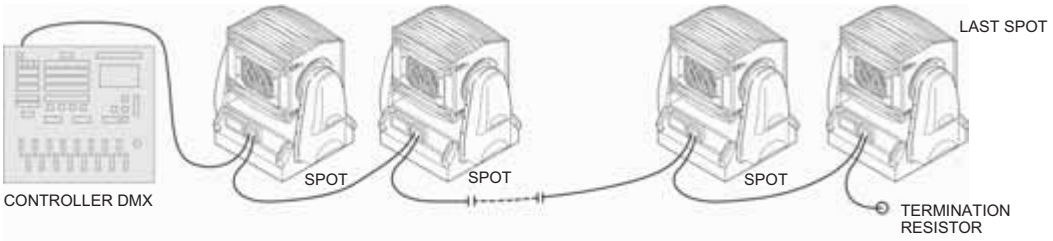
DMX 512 TERMINAL LINE

The wrong connection of the terminal line or its non-connection are probably the most frequent reasons for the defective functioning of the DMX line. The terminator is a resistor fitted between the two “data” lines (pins 2 and 3 of an XLR 5 pin connector) at the end of the cable furthest from the transmitter. The terminator resistor should have the same value as the impedance of the connection cable.

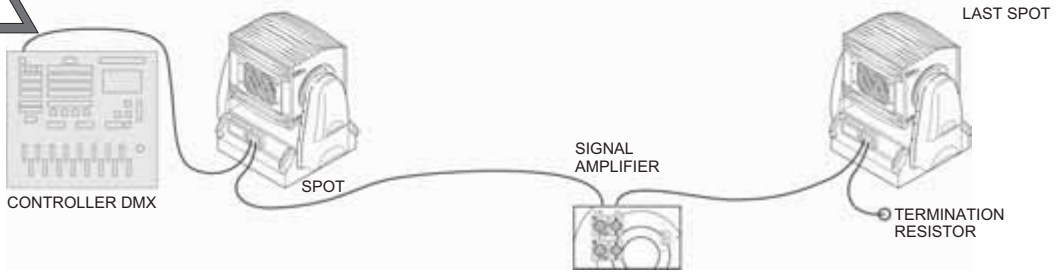
We suggest to use a terminal with a 100 Ohm resistor.

It is recommanded that all DMX 512 systems have the termination resistor at the and of the line.

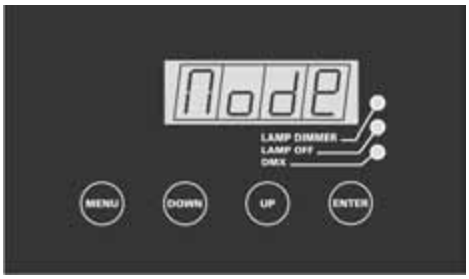
EXAMPLE 1: connection controller-spot with 1 DMX 512 output



EXAMPLE 2: connection controller-spot to one DMX 512 output over 150mts long



USE OF THE SIRIO RAY 1200/1800 IN AUTO-MODE



MASTER

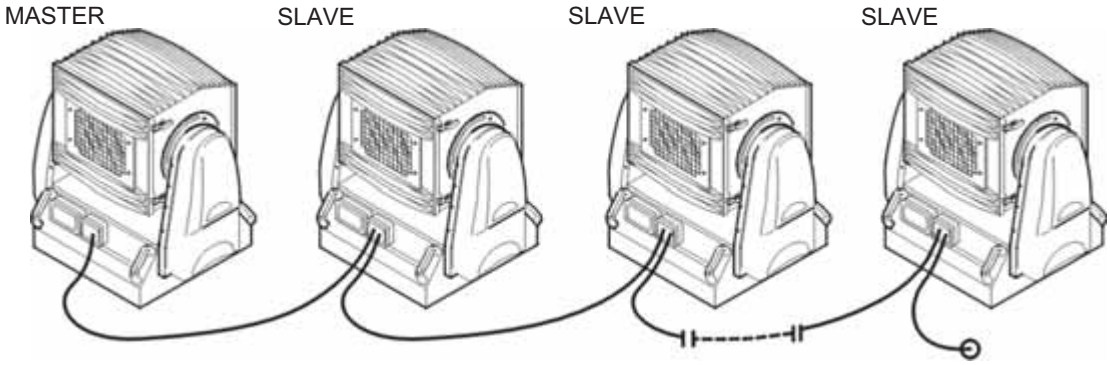
A short list of the games can be found in appendix “B”.

Press the **MENU** button on the control panel up to when the option **MODE** (pict. 7) is shown on the display, select it by pressing **ENTER** and the set indication will appear (no...SL). Use Down and Up buttons to change the mode and, once the required one has been selected, press and keep ENTER pressed up to when the display stops flashing (it flashes to indicate that the selected option is different from the pre-set one). The available options are: no (normal) for the functioning in DMX reception; Pr01…Pr27 (pre-set 01…27) for the master functioning with the respective game, SL (slave) for the functioning as slave.

To go back to the options without any change, press the **MENU** button.

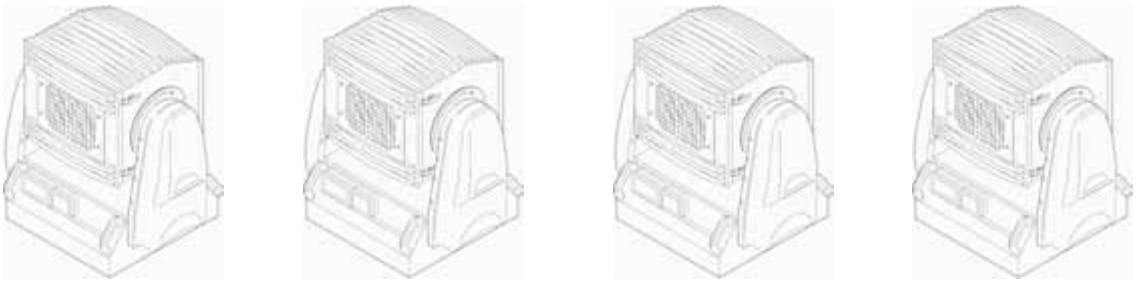
Mode no use of the **Sirio RAY 1200/1800** in DMX-512
Pr1..Pr27 master functioning with execution of the 27 stored programme
SL use of the **Sirio RAY 1200/1800** in SLAVE MODE

EXAMPLE OF CONNECTION AND SETTING OF 4 “SIRIO RAY” IN SYNCHRO - MODE



WARNING: the cables are the same as the DMX standard cable

EXAMPLE OF CONNECTION AND SETTING OF 4 “SIRIO RAY” IN INDIPENDENT AUTO - MODE



MASTER MASTER MASTER MASTER

TROUBLESHOOTING GUIDE

Before calling for technical assistance, follow the recommended procedures in this appendix to solve many problems on your fixture.

CAUTION! • BEFORE YUO BEGIN:

Before you perform any troubleshooting procedures read the following personnel and equipment safety precautions:

1) Refer servicing to service personnel (Q.T.= qualified technician); no user serviceable parts inside
2) Wear hand and eye protection
3) Wait at least five minutes before accessing the lamp after operation
4) Disconnect the unit from power before removing any cover (Q.T.)

If the procedures do not solve your problem and you need to call for assistance, please provide the support technician with the follow information:

- Customer name
- Phone number and fax number
- Fixture serial number
- Message that are you displayed on your **Sirio RAY 1200/1800** display
- Description of the problem and the troubleshooting procedures that you have performed so far to diagnose and resolve the fault.

You can contact your authorized COEF dealer or directly COEF Technical Service.
(fax. +39.0572.636535 - e-mail: technical@coef.it)

Appendix "C" - Table A1

Problem	Pilot-tests (guide)	Probable causes	Suggested solutions
The unit does not turn on, the fans do not work. The unit is completely dead	Measure the mains voltage on the main connector. If you have the right value the main fuses are blown	No power. Power cord or connectors. Main fuses blown.	Connect power. Replace the cables and the connectors. Replace the mains fuse
The fans work, the display is turned off (no reset when switching on, no light).	The electronics do not work. Check that the leds on the motor board (CCIP PCB) are turned on, particularly check the +5V.	Short circuit on the +5V line. D4 has blown. U12 short circuit or blown	General test on the +5V line. Replace the D4 diode. Replace the U12.
The unit works normally but the lamp does not turn on	When switching on, you can ear the clack of the internal circuit breaker.	Bad lamp. Lamp is too hot to re-strike. Mains voltage is too low. The igniter is not working. Wrong ballast wiring.	Replace the lamp. Wait for the lamp cooling Measure the mains voltage. Replace the igniter. Check the ballast wiring
The unit works normally but the lamp does not turn on	When switching on, you can not ear the clack of the internal circuit breaker.	The unit is not properly closed (cover and/or lamp house) Fault on wiring, PCB, switches	Check and close all the eight mechanical latches Carry out the tests shown on page 25
The unit works normally but the lamp does not turn on.	The thermal switch on the head of the fixture is open. The last DMX channel on the controller (n. 7) is set on a value>250	Too high temperature inside the head. The fan on the head is not working The air-in grilles are stopped up. The REMOTE LAMP OFF command is on.	Wait that the lamp housing has cooled down. Check and if necessary replace the fan. Check and if necessary replace the RFH resistor Clean the grilles Set the DMX channel on 0 value.

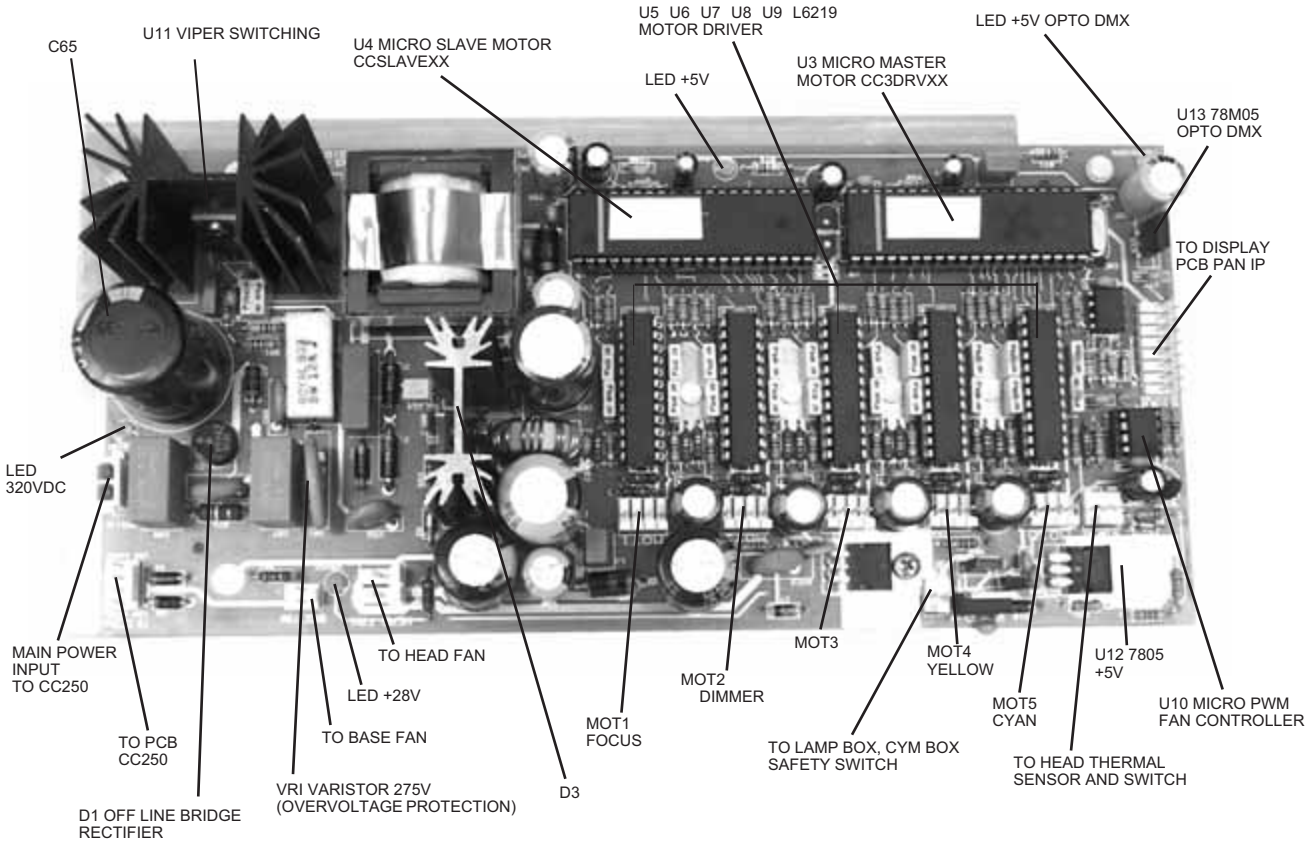
Ventilation of the head does not work normally	The electronic control of the fan is broken or not correctly connected	HEAD FAN connectors on the PCB CC are not ok U10 micro on the PCB CCIP broken	Check tension on the TO HEAD FAN connector Check the start-up test when switching on the fixture
Speed of the head fan is always the same	The electronic control of the fan is broken or not correctly connected	TO HEAD THERMAL SENSOR connectors are not ok Thermal sensor on the air output broken or disconnected U10 micro on the PCB CCIP broken	Check connections from TO HEAD THERMAL SENSOR connector to thermal sensor Check the thermal sensor Check the start-up test when switching on the fixture
The lamp is cutting out intermittently	The lamp is not working well. The values reached by the internal temperature are too high	The tension of the power supply is either too high or too low. The fan on the head is not working regularly The air grilles are stopped up.	Measure the mains voltage. Check and if necessary replace the fan. Check and if necessary replace the RFH resistor Clean the grilles
One of the function is not working well(ie. DIMMER)	Disconnect the power. Manually test if the DIMMER moves freely.	The stepper motor is damaged or the cable connected to the controller pcb is broke- (ref. CCIP PCB). The motor drive (L6219) is broken.	

DATA LINK (DMX 512) TROUBLESHOOTING

Appendix "C" - Table A2

Problem	Pilot-tests (guide)	Probable cause(s)	Suggested Solutions
None of the Sirio RAY responds to controller. The DMX led is switched off.	Make sure that all the units are set in DMX mode. After the configuration reset all the fixtures	The controller is not connected to the fixtures. The cable from the controller to the first of the Sirio RAY is interrupted (or pin 2 and 3 are swapped or the cables are on short circuit)	Connect the controller properly. Use an already tested cable and connect the fixtures one by one.
One or more of the Sirio RAY do not respond to the controller or do it wrongly.	The non-working fixtures are always the same. The fixtures work accidentally. If one of the connecting cables is missing this may cause a random malfunctioning in addition to apparent normal operation. If the inverted-data is cut wire is cut (pin. 2 on the DMX connector) the line works intermittently.	Wrong DMX address in the fixture. Wrong data cables, or disconnected or shorted. One fixture has a broken DMX board. DMX link not terminated.	Set the proper address Check and if necessary replace the cables. Use a tested cable and replace only one at a time. Use a tested cable and exclude only one fixture at a time. Insert the terminator on the last fixture

MAIN BOARD CONNECTIONS



- **POWER SUPPLY** +30V Led On, +5V Led, +320V Led, +5V DMX Led
- **DMX signal**
  - **Led flashing:** the DMX signal is operating on the board
  - **Led off:** check the U1 (6N137) and the DMX connecting cable (from PCB PAN IP)

- **STEPPER MOTOR channel not working: (i.e. YELLOW):**

1) Switch off the fixture and disconnect the YELLOW and CYAN cables
2) Connect the YELLOW cable on the CYAN connector
3) Switch on the fixture:
3a) If the YELLOW motor works normally it is necessary to replace the U6 (L6219)
3b) If the motor is still not working check with extreme attention the motor and the interconnecting circuits (cables and connectors). To check the cables and the motors you can measure the resistance as follows: between PIN 1 and PIN21 (on IC U6)r=~18ohm; between PIN 2 and PIN5 (on IC U6) r=~18ohm

- **If the led +5V OPTODMX is off:**

1) Disconnect TO DISPLAY PCB PAN IP connector; if the led is on check PCB PAN IP
2) Check U13 (78M05), L3, D6

- **If the led +5V is off:**

1) Disconnect TO DISPLAY PCB PAN IP connector; if the led is on check PCB PAN IP
2) Check D4, L2, U12

- **If the led +28V is off:**

1) Check if the led +320V is on, if it is ok:
1a) Check if U11 is in thermal drift **(ATTENTION on the heat dissipator there is dangerous tension!!!!)**
1b) Check if U5, U6, U7, U8, U9 are in short-circuit. Switch off the fixture. Remove all the chips from the socket. Switch on the fixture: if the led is on, insert the chips one by one in the sockets to find out which is in short-circuit.
1c) Check D3
1d) **If all the operations described above have not given any positive result, change U11**
2) If the led +28V is off together with the led +320V
2a) Check the MAIN POWER INPUT where you can measure the working voltage
2b) Check the main fuse, if it is blown check VR1 (normally it has a resistance = ¥). If it is in short circuit you must change it.
2c) Check D1 (Bridge Rectifier), if it is ok check C65.
2d) **If the fuse is still blown, change U11**

APPENDIX -A- *THE COMPLETE LIST OF DMX VALUES*

DMX CHANNEL	FUNCTION	DESCRIPTION	DECIMAL	PERCENT
1	MOTOR SPEED	SPEED MOVEMENT Slow Mid 1 Mid 2 Fast	00..63 64..127 128..191 192..255	< 25% 25%..50% 50%..75% >75%
2	CYAN	CONTINUOUSLY VARIABLE White Full Color	0 255	0% 100%
3	YELLOW	CONTINUOUSLY VARIABLE White Full Color	0 255	0% 100%
4	MAGENTA	CONTINUOUSLY VARIABLE White Full color	0 255	0% 100%
5	DIMMER	CONTINUOUSLY VARIABLE 8°..11° 15°..20°	0 255	0% 100%
6	BEAM ANGLE spot flood	CONTINUOUSLY VARIABLE 8°..11° 15°..20°	0 255	00% 100%
7	REMOTE RESET/LAMP-OFF (optional)	Normal Reset (delay) Normal Lamp-off (delay)	00..127 128..191 192..250 251..255	0%..50% 50%..75% 75%..98% 98%..100%

APPENDIX -B- *THE COMPLETE LIST OF THE AVAILABLE GAMES*

PROGRAM	FUNCTIONS
01	Red Magenta Yellow –color mix sequence (slow – 30sec)
02	Red Magenta Yellow + White color mix sequence (slow – 30sec)
03	Green Cyan Yellow – color mix sequence (slow – 30sec)
04	Green Cyan Yellow + White color mix sequence (slow – 30sec)
05	Blue Cyan Magenta – color mix sequence (slow – 30sec)
06	Blue Cyan Magenta + White color mix sequence (slow – 30sec)
07	All colors – colr mix sequence (slow – 30sec)
08	All colors + White color mix sequence (slow – 30sec)
09	All colors – color mix sequence (mid – 20sec)
10	All colors + White color mix sequence (mid – 20sec)
11	All colors color mix sequence (fast – 10sec)
12	All colors + White mix sequence (fast – 10sec)
13	All colors + White mix sequence (fast – 10sec)
14	Basic colors (6 sec.)
15	Basic colors + White (6 sec.)
16	Wood (fix)
17	Magenta (fix)
18	Red (fix)
19	Light Red (fix)
20	Orange (fix)
21	Yellow (fix)
22	Cyan (fix)
23	Light Cyan (fix)
24	Green (fix)
25	Light Green (fix)
26	White (fix)
27	Ten colors + white (slow - 1 Minute)